At *a* is the vagina, continued as an indistinct tube to *b*, which I suppose to be the seminal vesicle; immediately beyond this is a dark mass (*o*) containing spherical, highly refractive bodies; this is the ovary. On either side and in front of this are the yelk-forming glands (*e*), two somewhat indefinite lobular organs apparently communicating with the vagina in front of the seminal vesicle. At *c* and *d* are the globular testicles; *f* is the rudimentary vas deferens. Running forwards from the vagina is another narrower tube *g*, which passes quite to the anterior end of the segment, where it becomes at first slightly dilated (fig. 5, *u'*), and afterwards enlarged into the head of the uterus; a large spherical sac full of ova is readily seen with the naked eye in many sexually mature segments (fig. 4, *ut.*). The greater part of the body of this tube also becomes enlarged into the uterus (*u*, fig. 5), but I think that the hinder part continues tubular, and probably constitutes the "wide cavity" leading from *vagina to uterus*, described by Leuckart. In fig. 5 there is some appearance of this tube continued backwards from *u* (*a*, fig. 5), but I cannot follow it to any communication with the vagina (*va.*). The same is true in this specimen of the ovary (*ov.*) and seminal pouch (*s. p.*). The vitelligene glands (*e*, fig. 4) have disappeared in fig. 5, and the ovary has become less distinct, but the seminal pouch has developed somewhat, while in fig. 6, taken from a sexually mature segment, the latter organ is still plainer; the canal of the vagina has elongated, and shows besides the seminal pouch a smaller dilatation (*a*, fig. 6) nearer the orifice. In none of the mature segments have I been able to make out any communication between the vagina and uterus, either in front of or behind the seminal pouch.

Although Dr. Cobbold has succeeded in rearing a variety of tapeworms from their respective larvæ, the *Tænia echinococcus* has not hitherto been reared in this country.

The importance of this creature in its pathological relations, and the desideratum of more information as to its anatomy, have induced me to place the foregoing facts on record. In conducting the investigation I have taken every precaution to prevent the escape and distribution of the ova and their contained proscolices.

EXPLANATION OF PLATE.—Fig. 5.

va. Vagina.
ov. Ovarium.
s. p. Seminal pouch.
u, u'. Uterus partly developed.
a. Tube (?) leading from uterus to vagina.
t. Testicles.
v. d. Vas deferens.
c. p. Cirrhus pouch.

VIII. "Observations on the Ovum of Osseous Fishes." By W. H. Ransom, M.D. Communicated by Dr. Sharpey. Received June 21, 1866.

(Abstract.)

In this paper the author has communicated the details of observations of which the principal results were stated in a short paper published in the

Proceedings of the Royal Society in 1854, and of further researches on the structure and properties of the egg in several species of osseous fishes. The methods employed in determining the functions of the micropyle, and in conducting the various inquiries entered upon are described. The development of the ovarian ovum is traced in two species of *Gasterosteus*, and the yelk-sac is shown to increase by interstitial growth, and not by apposition of layers on either surface. A minute description of the germinal vesicle and its contents is given, and the germinal spots are shown to be drops of a thick fluid substance, so apt to change their normally round form, and to vacuolate in their interior, that no perfectly indifferent medium was found in which to examine them. The primitive yelk first formed around the germinal vesicle is shown to differ in some of its chemical and physical properties from that of the ripe ovum; it is solid, and does not consist of two distinguishable portions. On its surface a yelk-sac was found in very early ova, but in the smallest eggs examined it could not be separated.

The reactions of a variety of albumen allied to myosin, which the author has found in variable proportions in the yelk of all the fishes, amphibia, and birds which he has examined, are described, the yelk of the salmon being selected for experiment. This substance, to which the name albumen C. is given provisionally, is remarkable, in addition to its being easily precipitable by water in excess, for forming under certain conditions a solution in dilute nitric acid not coagulable by boiling.

Some account is rendered of the reactions of an acid compound of phosphoric acid with an organic substance also met with in the yelk of various animals.

The phenomena which follow impregnation prior to the commencement of cleavage are described, and are shown to be chiefly due to the influence upon the yelk of water which has passed through the yelk-sac.

Some variations which occur in this respect in different species of osseous fishes are described, and the ova of *Gasterosteus* are shown to be remarkable in having a viscid mucoid covering derived from the oviduct, which prevents the imbibition of water through the yelk-sac, so that it only then enters and forms a breathing-chamber after impregnation, when it passes through the aperture in the apex of the micropyle; whereas in the eggs of salmon and in those of most other fishes, unimpregnated ova rapidly absorb water by the whole surface of the yelk-sac, the yelk contracting at the same time to form the breathing-chamber.

The concentration of the formative yelk, originally forming a thin layer over the whole yelk-ball, at the germinal pole is also proved to be due to the action of water, of which it requires a free supply sufficient to distend the yelk-sac, and to be independent of fecundation.

The contractions of the yelk are shown to be also independent of the action of the spermatozoids, and to be reactions following the entrance of water into the breathing-chamber; and this not only as regards the rhythmic

waves, which pass over the surface of the food-yelk, but also the fissile contractility of the formative yelk, by virtue of which it cleaves into irregular and unsymmetrical masses, and which the author conceives to be regulated only by the influence of the seminal particles.

The cortical layer of the food-yelk or inner sac, which is shown to resist in a remarkable manner osmosis, is found to be the rhythmically contractile part, although requiring for its manifestation the presence of acid food-yelk upon its inner surface.

Evidence is given to show that the contractile property of the yelk of both kinds requires, as an essential condition of its manifestation, the presence of oxygen in the surrounding medium, and that the food-yelk, while the rhythmic waves are passing over it, consumes less than does the formative yelk, while regularly cleaving after fecundation; also that some product of oxidation is formed during these movements, which itself tends to check them, but which the author failed to determine the nature of.

Proofs are also given that a certain moderate rise of temperature increases the activity of these contractions. Experiments are related which show the extreme limits the yelk will bear without destroying them, and the temperature at which commencing chemical change prevents further contraction.

The reactions of the substance of the yelk under the stimulus of galvanism are recorded, and evidence afforded that the food-yelk and the cortical layer alone are excited to contraction by it, attempts made to induce fissile or other contractions of the formative yelk resulting in electrolysis of that highly unstable substance.

Experiments made to ascertain the effects produced by poisonous substances on the contractions of the yelk are recorded, and the general fact ascertained of the extreme indifference to such agents of yelk protoplasm.

Carbonic acid, however, is shown to destroy the contractility rapidly, and chloroform to arrest it for a time.

The process of cleavage is described, and experiments are given which show that oxygen in the surrounding medium is an essential condition of its occurrence. The influence of heat in quickening it, and the comparative indifference which it shows to the action of a galvanic current and to most poisons, are proved by a series of experiments, in which also the remarkable and destructive activity of carbonic acid is evidenced.

The author has considered the egg as a cell, its contents as a protoplasm, of which the firmer cortical layer is the equivalent of the primordial utricle, and the fluid food-yelk of the liquid contents, while the formative yelk is represented by the granular accumulation around the nucleus. Two stages or grades of development of protoplasm are conceived to be represented by the two forms of yelk, and a parallelism is attempted to be drawn between them and the stages of development through which many amœboid organisms pass, and which the author believes to have a wide, if not a universal existence in the organic world;

the lower grade represented by the homogeneous food-yelk with a cortical layer, and possessed of rhythmic contractility, passing into the higher represented by the formative yelk of a granular structure, and possessed of a fissile contractile property only.

IX. "Variations in Human Myology observed during the Winter Session of 1865-66 at King's College, London." By JOHN WOOD, F.R.C.S., Demonstrator of Anatomy. Communicated by Dr. SHARPEY. Received May 3, 1866.

In the present paper are given the results of observations, made with the greatest possible accuracy and care, of the muscular anatomy of thirty-four subjects, chiefly of the male sex, with an especial view to the study of the *combinations* of these abnormalities, and the directions in which they chiefly tend. To enable the reader more readily to comprehend these results, the author has tabulated them in the sheet appended to the paper. In the Table the names of the muscles placed at the head of each column refer to those in which more than one variety has been observed in the session. They will be found to correspond very closely with those given in the former papers by the author. In columns 4, 21, and 27 are placed those of which only one example has been met with. Some of these, however, are of much importance.

To explain the nature of the abnormality more precisely than could be done in the Table, a word or two will be necessary on such of the specimens as may be considered novel or typical.

Four columns are occupied by variations of the *head* and *neck*, the examples of which amount in the aggregate to twenty-two; some of the muscles in these may, however, strictly be considered as muscles also of the upper extremity, especially those in col. 3, which I have denominated *cleido-occipital*.

Col. 1. *Platysma myoides.*—The first of the two varieties noted (in subject 20) was connected with the inner side of the lower end of the normal muscle, the fibres passing in a broad band downwards and inwards, over the origin of the *sterno-cleido-mastoid*, the clavicle, and upper fibres of the *pectoralis major* to be inserted into the fascia covering the sternum as far down as the third costal cartilage.

The second (subject 29) was connected internally with the sternal fascia between the second and third costal cartilages, and crossing obliquely outwards and downwards over the lower fibres of the *pectoralis major* and axillary cavity, became attached to the tendon of the *latissimus dorsi*, exactly as we find its homologue, the *panniculus carnosus*, to do in the lower animals. This variety of the *Platysma* does not appear to have been previously recorded.

2. *Digastric.*—The two varieties of this muscle were found, as usual, in the anterior belly, which was double. In the first (No. 1) the redundant belly was attached by the median raphé to the one on the other side, and